

REMARKS

Status of the Claims

Claims 1-4 and 7-14 and 18-23 are pending. Claims 1-4 and 7-14 have been amended, claims 6 and 15-17 have been canceled and claims 18-23 are newly added.

No new matter has been added by way of the present submission. For instance, the basis for supporting the amendments to claim 1 can be found at Preparation Example 1 and page 13, line 19 in the specification for the average pore size, and Preparation Example 2 and page 14, line 13 in the specification for the average particle size. Also, the basis for supporting the amendments can be found at Preparation Examples 2 and 7 for claim 3, and Preparation Example 6 for claim 4. New claims 18 and 19 find support at page 14, lines 2-4. Lastly, new claims 20-23 find support as in claims 1-4 as well as the application as filed. Thus, no new matter has been added.

In view of the following remarks, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

Issues Under 35 U.S.C. § 102(b)

Claims 1-4, 6, 8, 9, 11 and 16 remain rejected under 35 U.S.C. § 102(b) as being anticipated by Shio, WO 98/14399 (hereinafter “Shio”) as evidenced by Sodium Silicates data sheet. This rejection is respectfully traversed.

Shio discloses a porous silica which is distinct from the presently claimed invention. To emphasize these distinctions, claim 1 has been amended to more clearly define the present invention, while at the same time delete the limitation concerning water glass. A comparison between pending claim 1 and the disclosure of Shio may be summarized by the following Table:

	Present Invention Claim 1	Shio
average pore size	0.8 – 3.3 nm (i.e., 8 - 33 Å)	38.46 – 44.32 Å (Table 6)
average particle size	350 nm – 100 µm (i.e., 350-100,000 nm)	50 - 300 nm (column 2, line 10)

As shown in the above comparison, the porous silica of the present invention has a smaller average pore size, while at the same time having a larger average particle size as compared to the porous silica of Shio. By employing this specific combination of average pore size and average particle size, the presently claimed invention is able to achieve excellent sustained-release property of substances supported in the pores. In particular, with a lower average pore size the opening portions of the present pores may be kept small, and since the average particles size is large, the depth of the pores is long. This combination surprisingly and superiorly results in a reduced release amount, and thus one may control the release of substances supported in the depths of the pores for a long term.

This particularly advantageous combination may be illustrated by way of a menthol substance being the substance supported therein. For example, when menthol is supported by the porous silica of the present invention, menthol is gradually released so that cooling/refreshing feeling of the menthol can be excellently maintained for a long period of time. In contrast, since the porous silica of Shio is defined by a larger pore size and a smaller particle size, such advantageous results are not achieved. Rather, in Shio the depth of the pores is shorter and the opening is larger so that, if menthol is supported, menthol is immediately or sooner released so that the cooling/refreshing feeling of the menthol cannot be sufficiently maintained.

Excellent sustained-release properties are obtained in a similar manner for the other substances supported by the porous silica such as volatile substances, thermal substances, plant polyphenol, organic colorants, not only for menthol. That is, in case that volatile substances and thermal substances are supported, the former can maintain enhanced cooling effect, while the latter can achieve a warm feeling for a long period of time because of the excellent sustained-release thereof. Further, if plant polyphenol is supported, deodorizing effects of polyphenol can be maintained by keeping the plant polyphenol within the pores as long as possible. Also, if organic colorants are supported, the organic colorants can be kept within the pores for a long term so that excellent effects can be shown in water resistance, light fastness and color developments.

In view of the above, Applicants respectfully submit that the citation of Shio is improper and should be withdrawn.

Issues under 35 U.S.C. §103(a)

Claims 1, 7, 10 and 12 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over Shio in view of Yoshimoto, JP 07-173452 (hereinafter “Yoshimoto”).

Further, claims 1 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shio in view of Terase, JP 05-070120 (hereinafter “Terase”).

Claims 1, 2 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shio in view of Anderson, U.S. 6,069,469 (hereinafter “Anderson”).

Finally, claims 15 and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shio (it is noted that claims 15 and 17 are cancelled herein).

These rejections are respectfully traversed.

Complete discussions of the Examiner's rejections are set forth in the Office Action, and are not being repeated here.

Initially, Applicants note that the rejected claims depend on independent claim 1, discussed above. The prior art additionally cited by the Examiner cannot address the deficiencies of Shio, thus, these rejections are likewise overcome. This will be discussed below

In Yoshimoto, a sustained-release property is reported as being achieved by coating porous silica with a polymeric material. However, Yoshimoto fails to disclose porous silica as defined in the present invention.

In Terase, polyphenols produced from fermentation of barley and hops are absorbed by porous silica for removal. In contrast, in the present invention, polyphenols are supported within the pores so as to suppress the release as much as possible, while exhibiting the deodorizing effects of the polyphenols. The objective of Terase is thus completely opposite to the objectives of the present invention.

Anderson discloses ink receptor medium and ink receptor composition, which relates to an ink receptor to be printed with ink. That is, the ink *per se* is not supported by the silica. Thus, Anderson is quite different from the present invention where a colorant *per se* is supported by the porous silica.

In view of the above, Applicants respectfully submit that the present claims define subject matter that the prior art as a whole fails to suggest or disclose. Thus, reconsideration and withdrawal of these additional rejections are respectfully requested.

Issues Under 35 U.S.C. § 112, 1st Paragraph (Written Description)

Claims 15 and 17 stand rejected under 35 U.S.C. § 112, 1st Paragraph. This rejection is respectfully traversed. Claims 15 and 17 are herein cancelled, thus this rejection is moot. Reconsideration and withdrawal thereof are respectfully requested.

Obviousness-Type Double Patenting Rejection

Claims 1-4 and 6-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2 and 4-8 of co-pending Application No. 10/588,453 in view of Shio and Yoshimoto or Terase or Anderson. This rejection is respectfully traversed.

Applicants respectfully request that this rejection be held in abeyance until there is at least an indication of allowable subject matter in one of the applications.

In view of the above, Applicants believe the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Vanessa Perez, Registration No. 61,158 at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

Dated: JUL 16 2010 Respectfully submitted,

By 

Craig A. McRobbie
Registration No.: 42874
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road, Suite 100 East
P.O. Box 747
Falls Church, VA 22040-0747
703-205-8000